Gestione remota

Centralized Networks vs Decentralized Networks

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by N-able

Content

With the rise of technologies like Blockchain and the cloud, the decentralized network has become a growing trend in today's business environments. These networks are a far cry from the centralized networks that were around five to 10 years ago, and this article will explain the basic differences between both environments, as well as the key advantages and disadvantages of each.

What is a decentralized network?

In computing terms, a decentralized network architecture distributes workloads among several machines, instead of relying on a single central server. This trend has evolved from the rapid advancements of desktop and laptop computers, which now offer performance well beyond the needs of most business applications; meaning the extra compute power can be put to use for distributed processing.

What are the advantages and disadvantages of decentralized networks?

A decentralized network offers a wide range of benefits over the more conventional centralized network, incl
privacy.

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One of the most important benefits of decentralized network management is the fact that there is no real single point of failure—this is because individual users' machines are not reliant on a single central server to handle all processes. Decentralized networks are also much easier to scale, as you can simply add more machines to the network to add more compute power.

In addition to this, a decentralized network architecture allows for greater privacy, as information is not passing through a single point and instead passes through a number of different points. This makes it much more difficult to track across a network.

However, on the downside, decentralized networks require more machines, which means more maintenance and potential issues, which in turn means an additional burden on your IT resources.

What is a centralized network?

A centralized network architecture is built around a single server that handles all the major processing. Less powerful workstations connect to the server and submit their requests to the central server rather than performing them directly. This can include applications, data storage, and utilities.

What are the advantages and disadvantages of centralized networks?

Some key advantages to centralized network management are consistency, efficiency, and affordability.

Network administrators are under pressure to keep machines patched and up-to-date, so having one central server control the whole network means less IT management time and fewer admins. In addition, all the data on a centralized network is required to go through one place, so it's very easy to track and collect data across the network.

Centralized networks do have their downsides; for example, a single point of failure can be a risk factor for organizations. If the central—or master—server goes down, the individual "client" machines attached to it are unable to process user requests. The impact of this failure will depend on how much the server processes. If the client machines do little more than submit requests, system availability can be totally compromised.

They also offer limited scalability. Because all applications and processing power are housed in a single server, the only way to scale your network is to add more storage, I/O bandwidth, or processing power to the server. This may not turn out to be a cost-effective solution in the long run.

Finally, a lack of bandwidth can also become a handicap. If you have a business with fluctuating periods of activity, a single server can soon prove a bottleneck, as it can be difficult to keep up with the influx of concurrent user requests—and the number of requests the system can really process.

What is the difference between centralized and decentralized networks?

Ultimately, network centralization was created as a way to improve efficiency and take advantage of potential economies of scale. On the other hand, decentralization looks to improve the speed and flexibility of your network by localizing processing power to the individual user.

As you can see from above, both setups have their advantages and disadvantages. There is no definitive answer as to whether one is better than the other; you need to appraise this based on your needs and which style fits better with your business.

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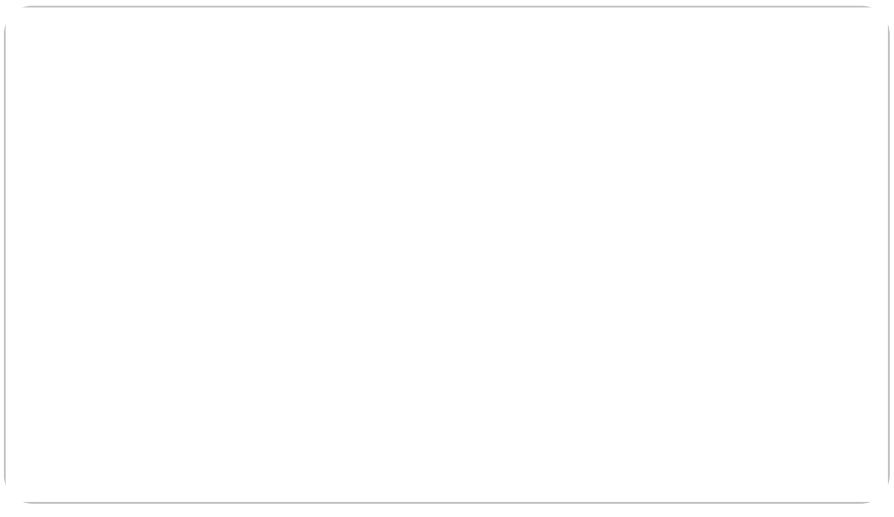

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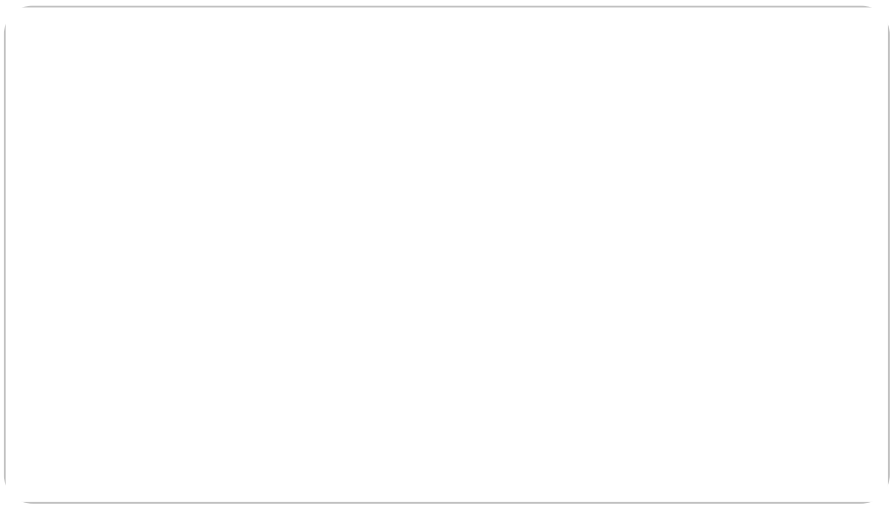

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